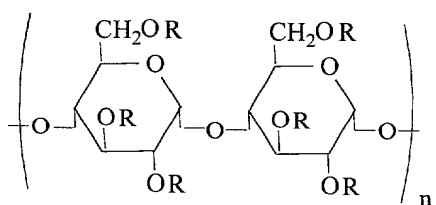


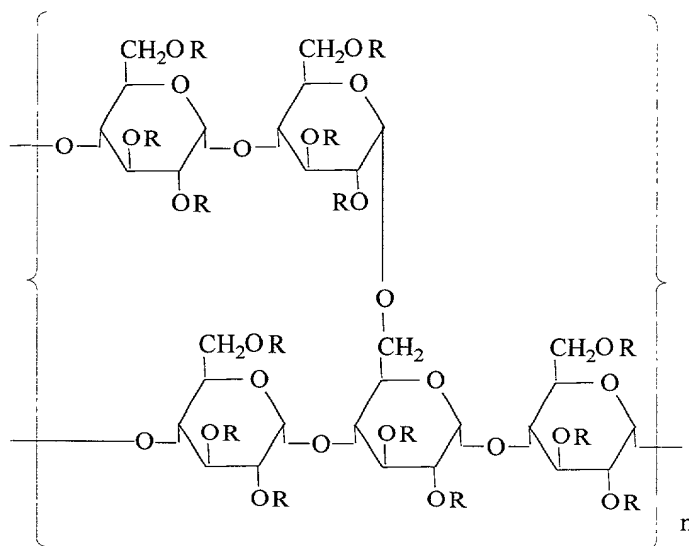
## WHAT IS CLAIMED IS:

1. A laundry and/or fabric care composition comprising:
  - a) from about 1% to about 80% by weight of surfactants selected from the group consisting of nonionic, anionic, cationic, amphoteric, zwitterionic surfactants, or mixtures thereof; and
  - b) from about 0.1% to about 5.0% by weight of a mixture of modified starch-based polymers and/or oligomers of the general formulas, alone or in combination



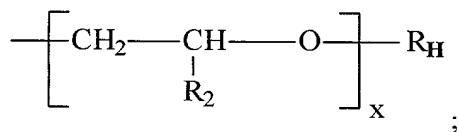
I

or



II

wherein each R is selected from the group consisting of R<sub>2</sub>, R<sub>C</sub>, and



wherein:

- each  $R_2$  is independently selected from the group consisting of H and  $C_1$ - $C_4$  alkyl;
- each  $R_C$  is  $\text{---}(\text{CH}_2)_y\text{---}\overset{\text{O}}{\parallel}\text{C}\text{---O}$ ,  
wherein each Z is independently selected from the group consisting of M,  $R_2$ ,  $R_C$ , and  $R_H$ ;
- each  $R_H$  is independently selected from the group consisting of  $C_5$ - $C_{20}$  alkyl,  $C_5$ - $C_7$  cycloalkyl,  $C_7$ - $C_{20}$  alkylaryl,  $C_7$ - $C_{20}$  arylalkyl, substituted alkyl, hydroxyalkyl,  $C_1$ - $C_{20}$  alkoxy-2-hydroxyalkyl,  $C_7$ - $C_{20}$  alkylaryloxy-2-hydroxyalkyl,  $(R_4)_2\text{N}$ -alkyl,  $(R_4)_2\text{N}$ -2-hydroxyalkyl,  $(R_4)_3\text{N}$ -alkyl,  $(R_4)_3\text{N}$ -2-hydroxyalkyl,  $C_6$ - $C_{12}$  aryloxy-2-hydroxyalkyl,  

$$\begin{array}{c} \text{O} \quad \text{R}_5 \quad \text{O} \quad \text{R}_5 \\ \parallel \quad | \quad \parallel \quad | \\ \text{---c---CH---C---CH}_2, \quad \text{---C---CH}_2\text{---CH---C---O} \end{array}, \text{ and}$$

$$\begin{array}{c} \text{O} \quad \text{R}_5 \quad \text{O} \\ \parallel \quad | \quad \parallel \\ \text{---c---CH---CH}_2\text{---C---O} \end{array};$$
- each  $R_4$  is independently selected from the group consisting of H,  $C_1$ - $C_{20}$  alkyl,  $C_5$ - $C_7$  cycloalkyl,  $C_7$ - $C_{20}$  alkylaryl,  $C_7$ - $C_{20}$  arylalkyl, aminoalkyl, alkylaminoalkyl, dialkylaminoalkyl, piperidinoalkyl, morpholinoalkyl, cycloalkylaminoalkyl and hydroxyalkyl;
- each  $R_5$  is independently selected from the group consisting of H,  $C_1$ - $C_{20}$  alkyl,  $C_5$ - $C_7$  cycloalkyl,  $C_7$ - $C_{20}$  alkylaryl,  $C_7$ - $C_{20}$  arylalkyl, substituted alkyl, hydroxyalkyl,  $(R_4)_2\text{N}$ -alkyl, and  $(R_4)_3\text{N}$ -alkyl;

wherein:

M is a suitable cation selected from the group consisting of  $\text{Na}^+$ ,  $\text{K}^+$ ,  $1/2\text{Ca}^{2+}$ ,  $1/2\text{Mg}^{2+}$ , or  $^+\text{NH}_j\text{R}_k$  wherein j and k are independently from 0 to 4 and wherein j + k is 4 and R in this formula is any moiety capable of forming a cation, preferably methyl and/or ethyl group or derivative;

each x is from 0 to about 5;

each y is from about 1 to about 5; and

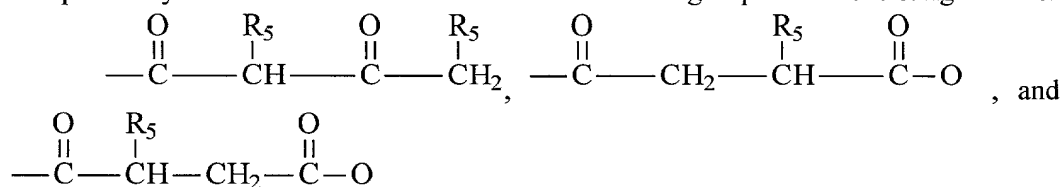
provided that:

- the Degree of Substitution for group  $R_H$  is between about 0.001 and about 0.1, more preferably between about 0.005 and about 0.05, and most preferably between about 0.01 and about 0.05;
- the Degree of Substitution for group  $R_C$  wherein Z is H or M is between about 0 and about 2.0, more preferably between about 0.05 and about 1.0, and most preferably between about 0.1 and about 0.5;
- if any  $R_H$  bears a positive charge, it is balanced by a suitable anion; and

- two R<sub>4</sub>'s on the same nitrogen can together form a ring structure selected from the group consisting of piperidine and morpholine.

2. The laundry and/or fabric care composition of claim 1, wherein each R<sub>H</sub> is independently selected from the group consisting of C<sub>5</sub>-C<sub>20</sub> alkyl, C<sub>5</sub>-C<sub>7</sub> cycloalkyl, C<sub>7</sub>-C<sub>20</sub> alkylaryl, C<sub>7</sub>-C<sub>20</sub> arylalkyl, substituted alkyl, hydroxyalkyl, C<sub>1</sub>-C<sub>20</sub> alkoxy-2-hydroxyalkyl, C<sub>7</sub>-C<sub>20</sub> alkylaryloxy-2-hydroxyalkyl, (R<sub>4</sub>)<sub>2</sub>N-alkyl, (R<sub>4</sub>)<sub>2</sub>N-2-hydroxyalkyl, (R<sub>4</sub>)<sub>3</sub>N-alkyl, (R<sub>4</sub>)<sub>3</sub>N-2-hydroxyalkyl, and C<sub>6</sub>-C<sub>12</sub> aryloxy-2-hydroxyalkyl.

3. The laundry and/or fabric care composition of claim 1, wherein each R<sub>H</sub> is independently selected from the group consisting of

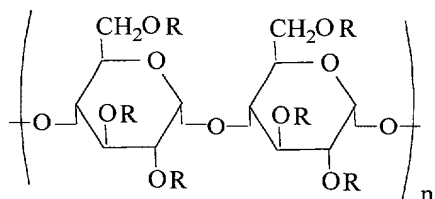


4. The laundry and/or fabric care composition of claim 1, wherein the modified starch-based polymer and/or oligomer has an average molecular weight of from about 5,000 to about 2,000,000.

5. The laundry and/or fabric care composition of claim 1, wherein the modified starch-based polymer and/or oligomer has an average molecular weight of from about 10,000 to about 1,000,000.

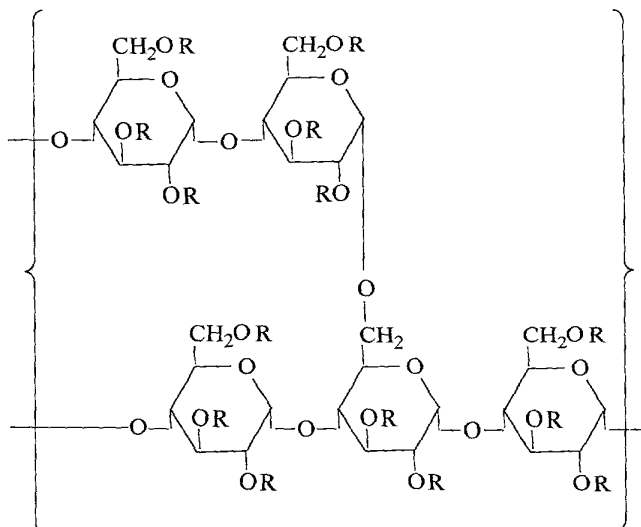
6. A laundry additive composition comprising:

- from about 1% to about 80% by weight of water; and
- from about 0.1% to about 80.0% by weight of modified starch-based polymers and/or oligomers of the general formulas, alone or in combination:



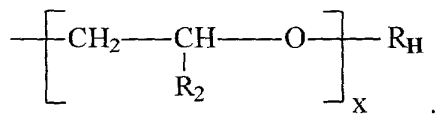
I

or



II

wherein each R is selected from the group consisting of  $R_2$ ,  $R_C$ , and



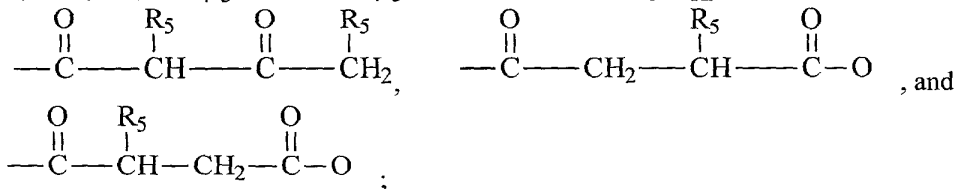
wherein:

- each  $R_2$  is independently selected from the group consisting of H and  $\text{C}_1$ - $\text{C}_4$  alkyl;

- each  $R_C$  is  $\text{---}(\text{CH}_2)_y\text{---}\overset{\text{O}}{\parallel}\text{C}\text{---}\text{O}$ ,

wherein each Z is independently selected from the group consisting of M,  $R_2$ ,  $R_C$ , and  $R_H$ ;

- each  $R_H$  is independently selected from the group consisting of  $\text{C}_5$ - $\text{C}_{20}$  alkyl,  $\text{C}_5$ - $\text{C}_7$  cycloalkyl,  $\text{C}_7$ - $\text{C}_{20}$  alkylaryl,  $\text{C}_7$ - $\text{C}_{20}$  arylalkyl, substituted alkyl, hydroxyalkyl,  $\text{C}_1$ - $\text{C}_{20}$  alkoxy-2-hydroxyalkyl,  $\text{C}_7$ - $\text{C}_{20}$  alkylaryloxy-2-hydroxyalkyl,  $(\text{R}_4)_2\text{N}$ -alkyl,  $(\text{R}_4)_2\text{N}$ -2-hydroxyalkyl,  $(\text{R}_4)_3\text{N}$ -alkyl,  $(\text{R}_4)_3\text{N}$ -2-hydroxyalkyl,  $\text{C}_6$ - $\text{C}_{12}$  aryloxy-2-hydroxyalkyl,



- each  $R_4$  is independently selected from the group consisting of H,  $C_1$ - $C_{20}$  alkyl,  $C_5$ - $C_7$  cycloalkyl,  $C_7$ - $C_{20}$  alkylaryl,  $C_7$ - $C_{20}$  arylalkyl, aminoalkyl, alkylaminoalkyl, dialkylaminoalkyl, piperidinoalkyl, morpholinoalkyl, cycloalkylaminoalkyl and hydroxyalkyl;
- each  $R_5$  is independently selected from the group consisting of H,  $C_1$ - $C_{20}$  alkyl,  $C_5$ - $C_7$  cycloalkyl,  $C_7$ - $C_{20}$  alkylaryl,  $C_7$ - $C_{20}$  arylalkyl, substituted alkyl, hydroxyalkyl,  $(R_4)_2N$ -alkyl, and  $(R_4)_3N$ -alkyl;

wherein:

M is a suitable cation selected from the group consisting of  $Na^+$ ,  $K^+$ ,  $1/2Ca^{2+}$ ,  $1/2Mg^{2+}$ , or  $^+NH_jR_k$  wherein j and k are independently from 0 to 4 and wherein j + k is 4 and R in this formula is any moiety capable of forming a cation, preferably methyl and/or ethyl group or derivative;

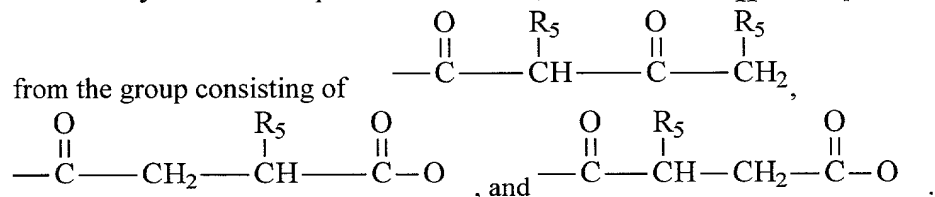
each x is from 0 to about 5;

each y is from about 1 to about 5; and

provided that:

- the Degree of Substitution for group  $R_H$  is between about 0.001 and about 0.1, more preferably between about 0.005 and about 0.05, and most preferably between about 0.01 and about 0.05;
  - the Degree of Substitution for group  $R_C$  wherein Z is H or M is between about 0 and about 2.0, more preferably between about 0.05 and about 1.0, and most preferably between about 0.1 and about 0.5;
  - if any  $R_H$  bears a positive charge, it is balanced by a suitable anion; and
  - two  $R_4$ 's on the same nitrogen can together form a ring structure selected from the group consisting of piperidine and morpholine.
7. The laundry additive composition of claim 6, wherein each  $R_H$  is independently selected from the group consisting of  $C_5$ - $C_{20}$  alkyl,  $C_5$ - $C_7$  cycloalkyl,  $C_7$ - $C_{20}$  alkylaryl,  $C_7$ - $C_{20}$  arylalkyl, substituted alkyl, hydroxyalkyl,  $C_1$ - $C_{20}$  alkoxy-2-hydroxyalkyl,  $C_7$ - $C_{20}$  alkylaryloxy-2-hydroxyalkyl,  $(R_4)_2N$ -alkyl,  $(R_4)_2N$ -2-hydroxyalkyl,  $(R_4)_3N$ -alkyl,  $(R_4)_3N$ -2-hydroxyalkyl, and  $C_6$ - $C_{12}$  aryloxy-2-hydroxyalkyl.

8. The laundry additive composition of claim 6, wherein each  $R_H$  is independently selected



9. The laundry additive composition of claim 6, wherein the modified starch-based polymer and/or oligomer has an average molecular weight of from about 5,000 to about 2,000,000.

10. The laundry additive composition of claim 6, wherein the modified starch-based polymer and/or oligomer has an average molecular weight of from about 10,000 to about 1,000,000.

11. The laundry additive composition of claim 1, wherein the Degree of Substitution for group  $R_H$  is between about 0.01 and 0.05.

12. The laundry additive composition of claim 1, wherein the Degree of Substitution for group  $R_C$  wherein Z is H or M is between about 0.4 and 0.7.

13. The laundry additive composition of claim 6, wherein the Degree of Substitution for group  $R_H$  is between about 0.01 and 0.05.

14. The laundry additive composition of claim 6, wherein the Degree of Substitution for group  $R_C$  wherein Z is H or M is between about 0.4 and 0.7.

15. A method for treating a fabric in need of treatment comprising contacting the fabric with a modified starch-based polymer and/or oligomer material such that the fabric is treated.

16. The method according to Claim 15 wherein said modified starch-based polymer and/or oligomer material is selected from the group consisting of: amylose, amylopectin and mixtures thereof.

17. A product comprising a modified starch-based polymer and/or oligomer material, the product further including instructions for using the modified starch-based polymer and/or oligomer material to treat a fabric in need of cleaning, the instructions including the step of contacting the fabric with a wash solution comprising the product.

18. The product according to Claim 17 wherein the product is a laundry detergent.
19. The product according to Claim 17 wherein the product is a laundry additive.
20. The product according to Claim 17 wherein the product is a fabric care composition.
21. A treated article made by the method according to Claim 15.